



1 ENVIRONMENTAL AND PUBLIC PROTECTION CABINET

2 Department for Environmental Protection

3 Division of Water

4 **(Amendment)**

5 401 KAR 4:060. Stream construction criteria.

6 RELATES TO: KRS 151.100, 151.110, 151.182, 151.184, 151.186 [~~151.180~~], 151.210,
7 151.250, 151.260, 151.280, 151.310, 44 C.F.R. Part 60, 44 C.F.R. 64.3

8 STATUTORY AUTHORITY: KRS 151.125, 151.230

9 NECESSITY, FUNCTION, AND CONFORMITY: This administrative regulation
10 provides minimum standards necessary to ensure the wise use of the Commonwealth's flood
11 prone areas while protecting the safety and welfare of the public and preventing both flood
12 damages and increased flood levels. These aims are addressed through provisions which require
13 that all development in the base floodplain is done in a manner which precludes flood damages.
14 In addition, there are provisions which ensure that flood levels are not unduly increased. The
15 provisions of this administrative regulation shall [~~will~~] be implemented through the permitting
16 authority in KRS 151.250 and executive order 77-927, incorporated in Section 9 of this
17 administrative regulation.

18 Section 1. Definitions. Terms used in this administrative regulation shall have the
19 meanings given them in KRS 151.100 or this section.

20 (1) "Areas of Shallow Flooding" means a designated flood zone with a one (1)
21 percent or greater annual chance of flooding to an average depth of one (1) to three (3) feet

1 where clearly defined channel does not exist, where the path of flooding is unpredictable, and
2 where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

3 (2) "Backwater effect" means the rise in water surface elevation caused by
4 obstruction of a stream's flow, such as by a narrow bridge opening, buildings or fill material that
5 limits the area through which the stream's flow must pass.

6 (3) [(2)] "Base flood" means the flood having a one (1) percent chance of being
7 equaled or exceeded in any given year, also called the 100-year frequency flood.

8 (4) [(3)] "Base floodplain" means the area along, adjacent to, and including a
9 stream, which is inundated by the base flood on that stream.

10 (5) "Base flood elevation (BFE)" means the elevation of the water surface measured
11 above mean sea level, as defined on the applicable FEMA Flood Insurance Rate Map (FIRM) in
12 either the NGVD 1929 or NAVD 1988 vertical datum, reached during the base flood.

13 (6) [(4)] "Basement" means any area of the building having its floor below ground
14 level on all sides.

15 (7) [(5)] "Conveyance" means a measure of the flow-carrying capability of a
16 stream cross section and is equal to the flow rate at a given depth in cubic feet per second
17 divided by the square root of the slope of the energy grade line in feet per foot.

18 (8) [(6)] "Cross section" means a graph or plot of ground elevation across a stream
19 valley or portion of it along a line perpendicular to the direction of stream flow.

20 (9) [(7)] "Designated floodway" means the stream and that portion of the adjacent
21 base floodplain specified by a local ordinance or indicated on National Flood Insurance Program
22 maps ~~[to be kept free of obstructions to the passage of flood flows]~~.

23 (10) [(8)] "Energy grade line" means a line that represents the elevation of the total

1 energy head of water flowing in a pipe, conduit, or channel [~~representation of the total energy~~
2 ~~possessed by flowing water. The value at any point on the line can be expressed as an elevation~~
3 ~~in feet above mean sea level equal to the elevation of the water surface plus the hydraulic head.~~
4 ~~Hydraulic head is approximately equal to the quotient of the square of the average velocity over~~
5 ~~the cross section divided by twice the acceleration of gravity ($V^2/2g$)].~~

6 (11) "Existing Construction" means any structure, manufactured home park, or
7 subdivision constructed on or before the effective date of the FEMA Flood Insurance Rate Map
8 (FIRM) or the Flood Hazard Boundary Map (FHBM) for the community where the proposed
9 structure is located, or in cases where no FIRMs are available, on or before October 1987.

10 (12) [(9)] "Flood crest" means the maximum stage or elevation reached or expected
11 to be reached by waters of a specific flood at a given location.

12 (13) [(10)] "Flood frequency" means a statistical expression of the average time
13 period between floods equaling or exceeding a given magnitude.

14 (14) "Flood Boundary and Floodway Map (FBFM)" means a map on which the
15 Federal Emergency Management Agency (FEMA) or Federal Insurance Administration (FIA)
16 has delineated the areas of flood hazards and the regulatory floodway, pursuant to 44 C.F.R. Part
17 60 and 44 C.F.R. 64.3.

18 (15) "Flood Hazard Boundary Map (FHBM)" means an official map of a community,
19 issued by FEMA, pursuant to 44 C.F.R. Part 60 and 44 C.F.R. 64.3, where the boundaries of the
20 areas of special flood hazard have been identified as Zone A.

21 (16) "Flood Insurance Rate Map (FIRM)" means an official map of a community, on
22 which FEMA, pursuant to 44 C.F.R. Part 60 and 44 C.F.R. 64.3, has delineated both the areas of
23 special flood hazard and the risk premium zones applicable to the community.

1 (17) “Flood Insurance Study (FIS)” is the official hydraulic and hydrological report by
2 FEMA, pursuant to 44 C.F.R. Part 60 and 44 C.F.R. 64.3, containing flood profiles, the FIRM,
3 FHBM where applicable, and the water surface elevation of the base flood.

4 (18) [(44)] "Flood proofing" means structural changes or adjustments to new or
5 existing structures and facilities, their contents, or their sites for the purpose of reducing or
6 eliminating flood damages by protecting against structural failure, keeping water out, or reducing
7 the effect of water entry.

8 (a) “Dry flood proofing” means modifying a structure so that it is watertight below
9 the flood protection elevation so that floodwaters cannot enter.

10 (b) “Wet flood proofing” means modifying the uninhabited portions of a house, such
11 as a crawlspace, so that floodwaters may get in but will not cause significant damage.

12 (19) [(42)] "Flood warning" means the issuance and dissemination of information
13 about an imminent or current flood.

14 (20) [(43)] "Historic structure" means any structure that is:

15 (a) Listed individually in the National Register of Historic Places or preliminarily
16 determined by the Secretary of the Interior as meeting the requirements for listing;

17 (b) Certified or preliminarily determined as contributing to the historical significance
18 of a registered historic district;

19 (c) Listed on the state inventory of historic places; or

20 (d) Listed on a local inventory of historic places in communities with historic
21 preservation programs approved by the state or the Secretary of the Interior.

22 (21) “Letters of Map Change (LOMC)” means an official FEMA determination, by
23 letter, to amend or revise effective Flood Insurance Rate Maps, Flood Boundary and Floodway

1 Maps, and Flood Insurance Studies.

2 (22) "Licensed engineer and land surveyor" means a professional engineer or surveyor
3 with accreditation in the state of Kentucky.

4 (23) [(14)] "Lowest floor" means the lowest floor of the lowest enclosed area,
5 including any basement, but does not include an [-An] unfinished or flood resistant enclosure
6 usable solely for parking of vehicles, building access, or storage of mobile equipment or of
7 property that is not flood damageable in an area other than a basement [is not considered a
8 building's lowest floor].

9 (24) [(15)] "Manufactured home" means a structure, transportable in one (1) or more
10 sections, that is built on a permanent chassis and designed for use with or without a permanent
11 foundation when connected to utilities, but does not include recreational vehicles [-The term
12 includes park trailers and similar vehicles] placed on a site for less [greater] than one hundred
13 and eighty (180) consecutive days.

14 (25) "Manufactured home park" means a parcel or continuous parcels of land divided
15 into two (2) or more manufactured home lots for rent or sale.

16 (26) [(16)] "National Flood Insurance Program", or "NFIP", means a federal program
17 which makes available flood insurance protection to property owners in flood prone areas. [To
18 qualify for the sale of this federally subsidized flood insurance, this program requires a
19 community to adopt and submit to the Federal Emergency Management Agency (FEMA) base
20 floodplain management regulations which satisfy FEMA's minimum requirements designed to
21 reduce or avoid future flood or flood related damages.]

22 (27) "No Impact" means a certification by a licensed engineer that an encroachment
23 shall not result in any increase in the base flood elevations, floodway elevations, and floodway

width during the occurrence of the base flood discharge, referred to as “No Impact Certification”.

(28) “NAVD 1988” means a vertical control, as corrected in 1988, used as a reference for establishing varying elevations within the floodplain.

(29) “NGVD 1929” means a vertical control, as corrected in 1929, used as a reference for establishing varying elevations within the floodplain.

(30) “Non-substantial improvement” means any combination of repairs, reconstruction, alteration, or improvement to a structure, in which the cumulative cost does not exceed fifty (50) percent of the present market value of the structure.

(31) [(17)] “100-year flood” means a flood of a magnitude having a one (1) percent chance of occurring in any given year [~~and which, over a very long period of time, can be expected to be equaled or exceeded on the average of once every 100 years~~].

(32) [(18)] “Permit” means written approval [~~a permit~~] for any construction across, along, or adjacent to a stream subject to the provisions of KRS 151.250 [~~but does not mean permits for the construction of dams~~].

(33) [(19)] “Profile” means a graph or elevation plot [~~elevation~~] of the water surface or channel bottom against distance along the stream.

(34) “Recreational Vehicle” means a vehicle that is:

(a) Built on a single chassis;

(b) 400 square feet or less when measured at the largest horizontal projection;

(c) Designed to be self propelled or permanently towable by a light duty truck; and

(d) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

(35) [(20)] “Regulatory floodway” means the stream channel and that portion of

1 adjacent land area that is required to pass flood flows without raising the base flood crest
2 elevation by more than one (1) foot. [~~In areas where three (3) or more houses or commercial or~~
3 ~~industrial buildings may be affected, backwater effect used to determine the regulatory floodway~~
4 ~~may be limited to less than one (1) foot.~~]

5 (36) [(21)] "Stream" is defined in KRS 151.100(3)[~~means any river, creek or channel,~~
6 ~~having well defined banks, in which water flows for substantial periods of the year to drain a~~
7 ~~given area, or any lake or other body of water in the Commonwealth].~~

8 (37) "Structure" means an object constructed or installed which may be an obstruction
9 to flood flows such as buildings, manufactured homes, towers, smokestacks, and overhead
10 transmission lines.

11 (38) "Substantial damage" means damage of any origin sustained by a structure
12 whereby the cost of restoring the structure to before-damaged conditions would equal or exceed
13 fifty (50) percent of the market value of the structure before the damage occurred.

14 (39) [(22)] "Substantial improvement" means any combination of repairs,
15 reconstruction, alteration, or improvements to a structure, taking place during a one (1) [~~five (5)~~]
16 year period, in which the cumulative cost equals or exceeds fifty (50) percent of the market value
17 of the structure, excluding periodic maintenance and upkeep that does not increase the value of
18 the structure. [~~The market value of the structure shall be:~~

19 (a) ~~The appraised value of the structure prior to the start of the initial repair or~~
20 ~~improvement; or~~

21 (b) ~~If damage has occurred, the value of the structure prior to the damage. Substantial~~
22 ~~improvement is considered to occur when the first alteration of any wall, ceiling, floor, or other~~
23 ~~structural part of the building commences, whether or not that alteration affects the external~~

1 ~~dimensions of the structure. The term does not, however, include any project for improvement of~~
2 ~~a structure required to comply with existing health, sanitary, or safety code specifications which~~
3 ~~are solely necessary to assure safe living conditions.]~~

4 Section 2. Applicability. This administrative regulation shall apply to all construction
5 across, along, or adjacent to a stream (i.e., the base floodplain) or in the floodway of a stream for
6 which a construction permit is required pursuant to KRS 151.250, 44 C.F.R. Part 60, and 44
7 C.F.R. 64.3, except for the construction of dams as defined in KRS 151.100.

8 Section 3. General Provisions. (1) This administrative regulation shall constitute
9 minimum criteria for the issuance of permits for stream construction pursuant to KRS 151.250,
10 44 C.F.R. Part 60, and 44 C.F.R. 64.3. If the cabinet determines that additional information is
11 pertinent or best engineering practice is required, it may apply more stringent considerations.

12 (2) The applicant shall properly complete an appropriate application form,
13 incorporated by reference in Section 9 of this administrative regulation, with all pertinent
14 information and submit to the cabinet. ~~[The permittee shall provide the cabinet with written~~
15 ~~notification that construction was completed in accordance with approved plans and~~
16 ~~specifications not later than ninety (90) days after completion of construction.]~~

17 (3) Any construction limits specified in the permit shall be plainly staked or
18 otherwise marked on the site.

19 (4) Public notification.

20 (a) As part of the stream construction permit issuance procedure, each applicant shall
21 provide notice to all parties who may ~~[might]~~ incur additional flood-related damages as a result
22 of the construction for which ~~[that]~~ a permit has been requested, except as provided in
23 subparagraph 3 of this paragraph.

1 1. For those projects that [~~the cabinet determines~~] may have flooding impacts
2 beyond the local area of the construction, the applicant shall publish a notice in the newspaper
3 having greatest circulation in the area of the proposed construction.

4 a. This notice shall provide:

5 i. [~~a.~~] The name and address of the applicant;

6 ii. [~~b.~~] The location, nature, and extent of the proposed construction; and

7 iii. [~~c.~~] The address and telephone number of the Division of Water and stating the
8 comments and objections shall be directed to the division.

9 b. The notice shall be run for period of three (3) consecutive days or printings of the
10 newspaper; however, for weekly newspapers or areas where newspapers are printed less
11 frequently, the cabinet may reduce this requirement to two (2) consecutive printings upon written
12 request of the applicant.

13 c. The public notice required in paragraph (a)1 of this subsection shall be at least
14 three (3) column inches in size, and shall be large enough that all of the information required in
15 paragraph (a)1 of this subsection is easily readable.

16 2. Where the cabinet determines that flood impacts will be localized, the applicant
17 may obtain and submit affidavits from all parties who reside, own property, or have other
18 legitimate property interests in the affected areas. This affidavit shall [~~will~~] contain a complete
19 description of the proposed construction, a place for concerned parties to sign indicating that
20 they have read the statement and that they understand that a permit application is being
21 submitted to the cabinet, and the name and address of the cabinet representative to whom
22 statements of concern or request for hearing may be addressed.

23 3. For construction projects that [~~the cabinet determines~~] will have negligible flood

1 impacts (e.g. placement of electrical utility power poles or transmission towers where no fill is
2 included or minor stream-bank restoration), the cabinet may waive the public notification
3 requirement after receipt of a written request from the applicant to do so.

4 4. The cabinet shall [~~will~~] notify all persons filing comments or objections to the
5 issuance of any permit of their right to be heard pursuant to the provisions of KRS 151.182(2).

6 (b) Proof that the notice was published or the original of the completed affidavit [~~as~~
7 ~~applicable,~~] shall be provided to the cabinet before the application shall [~~will~~] be considered
8 complete; however, technical review of the application by the cabinet may proceed before proof
9 is provided. Issuance of the permit shall not proceed until sufficient proof of notice is submitted.

10 [~~(c) — The public notice required in paragraph (a)1 of this subsection shall be at least~~
11 ~~three (3) column inches in size, and shall be large enough that all of the information required in~~
12 ~~paragraph (a)1 of this subsection is easily readable.~~]

13 (c) [(~~d~~)] If the cabinet determines any of the conditions of paragraph (a) of this
14 subsection are not met by the initial notice or affidavit, it may require that the applicant place
15 another notice or provide another affidavit which does so. The application shall [~~will~~] not be
16 considered complete until the applicable public notification provisions of this subsection are
17 satisfied.

18 (5) The permit shall become effective on the date of issuance and shall remain valid
19 for a period of one (1) year. Extensions may be requested in writing, on a year by year basis, and
20 shall be granted if:

21 (a) The scope of work and ownership has not changed; and

22 (b) There is no change in BFE or regulatory floodway.

23 (6) The permittee shall provide the cabinet with written notification that construction

1 was completed in accordance with approved plans and specifications not later than ninety (90)
2 days after completion of construction. If any of the provisions of the permit are not met, the
3 cabinet may revoke the permit pursuant to KRS 151.125.

4 (7) In cases where any watercourse or channel relocation or realignment and any
5 encroachment that causes a change in base flood elevations takes place, all supporting technical
6 data shall be submitted to FEMA in order to obtain the appropriate Letter of Map Change
7 (LOMC) that will officially amend the FIRM in a given community.

8 (8) Any substantial improvement that increases the current market value of the
9 structure by more than fifty (50) percent will be considered as new construction. The market
10 value of the structure shall be:

11 (a) The appraised fair market value of the structure prior to the start of the initial
12 repair or improvement; or

13 (b) If damage has occurred, the fair market value of the structure prior to the damage.

14 (9) Substantial improvement is considered to occur when the first alteration of any
15 wall, ceiling, floor, or other structural part of the building commences, whether or not that
16 alteration affects the external dimensions of the structure. The term does not, however, include
17 any project for substantial or non-substantial improvement of a structure required to comply with
18 existing health, sanitary, or safety code specifications which are solely necessary to assure safe
19 living conditions.

20 Section 4. Uses of Regulatory Floodway. (1) Except as provided in subsection 2, all
21 encroachments, including fill, new construction, substantial improvements, and other
22 development is prohibited unless certification, with supporting technical data, by a licensed
23 engineer is provided that demonstrates that the encroachments shall have “no impact”, or not

1 result in any increase in flood levels during occurrence of the base flood discharge. ~~[below, no~~
2 ~~fill, deposit, obstruction, excavation, storage of materials, or structure, either alone or in~~
3 ~~combination with existing or future similar works, which may adversely affect the efficiency or~~
4 ~~the capacity of the regulatory floodway, existing streams, or drainage facilities shall be placed in~~
5 ~~the regulatory floodway. The determination of adverse effects shall be based on the assumption~~
6 ~~that all allowable encroachment will occur above and below the project site and on both sides of~~
7 ~~the stream and shall be made in the manner described in Section 5 of this administrative~~
8 ~~regulation. Structures that are:~~

9 (a) ~~Designed for human habitation;~~

10 (b) ~~Associated with high flood damage potential;~~

11 (c) ~~Not connected with permitted open space uses; or~~

12 (d) ~~Structures consistent with open space uses, but that could themselves obstruct~~
13 ~~flood flows, shall not be located in the regulatory floodways. No person shall store materials that~~
14 ~~are buoyant, flammable, explosive, or injurious to human, animal or plant life within regulatory~~
15 ~~floodway limits.]~~

16 (2) The following activities or structures are permitted ~~[allowed]~~ for land within the
17 regulatory floodway limits of a stream if they do ~~[are]~~ not ~~[of such nature as to]~~ result in
18 increases in flood elevations:

19 (a) Open space uses having no appreciable flood damage potential such as those
20 associated with agriculture, silviculture, recreation, parking, storage yards, and certain sand and
21 gravel operation;

22 (b) Certain structures, such as aerial utility crossings, that are related to allowable
23 open space uses if the structures are designed, constructed and placed on the lot so as to offer no

1 ~~[the minimum]~~ obstruction to flood flows;

2 (c) Structures necessary for navigation and waterborne freight handling, for
3 transportation or utility crossings, if ~~[the cabinet determines that]~~ every effort has been made to
4 reduce the impact of all such facilities on flooding and if the facilities considered alone or in
5 conjunction with permissible development above and below it and on the opposite side of the
6 stream do not create an increase in flood elevations in excess of that which is appropriate for
7 determination of the floodway boundaries at that site pursuant to ~~[as discussed in]~~ Section 5 of
8 this administrative regulation;

9 (d) Dredging or other removal of material from between the stream banks and the
10 regulatory floodway, if disposal of the dredged material is outside of the regulatory floodway;
11 ~~[and]~~

12 (e) Recreational vehicles may be permitted in the regulatory floodway for a period of
13 no more than one hundred eighty (180) days, if the vehicle is placed so that it can be moved
14 easily in case of imminent flooding; and

15 (f) ~~(e)~~ Other activities exempted by 401 KAR 4:020 and 4:050.

16 Section 5. Determining Regulatory Floodway Boundaries. (1) The regulatory
17 floodway boundaries shall include the stream channel and that portion of the adjacent land areas
18 required to pass the base flood discharge without increasing the water surface elevation at any
19 point more than one (1) foot. Where the stream flow is supercritical, or where velocity is so high
20 that backwater considerations are not possible or appropriate, the determination of regulatory
21 floodway boundaries shall be based on a one (1) foot maximum allowable rise in the energy
22 grade line. When making these calculations, the cabinet shall ~~[will]~~ use methods which consider
23 equal conveyance losses on opposite sides of the stream.

(2) For stream segments for which a local government has used methods comparable to those specified in this section to define floodway boundaries and has adopted these boundaries by ordinance or for which the Federal Emergency Management Agency (FEMA) has developed a Flood Insurance Study (FIS), Flood Hazard Boundary Maps (FHBM), Flood Boundary and Floodway Maps (FBFM), ~~[determined and]~~ mapped floodway boundaries and areas of shallow flooding, the cabinet shall ~~[will]~~ consider these designated floodway boundaries to define the regulatory floodway. If both locally-determined floodway boundaries and FEMA maps are available, the more stringent shall apply for purposes of this administrative regulation.

(3) Notwithstanding any other provisions of this administrative regulation, in areas containing ~~[where]~~ one (1) ~~[three (3)]~~ or more houses or commercial or industrial buildings that may be affected by flooding or at other locations where ~~[, on a case-by case basis, the cabinet determines that]~~ the one (1) foot increase in base flood elevation (BFE) allowable in determining regulatory floodway boundaries would create an undue increase in flood damages, the cabinet may impose a more stringent limitation on the floodway determination.

(4) Base flood flow information shall be determined by one (1) of the following methods, which are listed in descending order of preference:

(a) The base flood flow frequency curve for gauged sites on unregulated streams shall be obtained from the district office of the U.S. Geological Survey ~~[, Water Resources Division]~~ or the appropriate U.S. Army Corps of Engineers district office. These data shall be applied so as to provide the best discharge estimates for the site under consideration. Peak discharges for ungauged sites on a gauged stream may consider both the gauged site information and information from an appropriate regional estimate, where available. The transfer technique for establishing discharges at the ungauged location shall be by interpolation or extrapolation

1 methods in keeping with best engineering practices. For gauged streams with regulated flows,
2 peak discharges shall be obtained from the agency responsible for regulating the flow [~~the~~
3 ~~regulation~~].

4 (b) For ungauged streams one (1) of the following shall be used:

5 1. "Estimating the Magnitude of Peak Flows for Streams in Kentucky for Selected
6 Recurrence Intervals", U.S. Geological Survey, Water Resources Investigations Report 03-4180,
7 incorporated by reference in Section 9 of this administrative regulation [~~Where the watershed~~
8 ~~area is greater than ten (10) square miles, the source of information shall be "Techniques for~~
9 ~~Estimating Magnitude, Frequency, and Duration of Flows in Kentucky," U.S. Army Corps of~~
10 ~~Engineers, incorporated by reference in 401 KAR 4:200~~];

11 2. Natural Resources Conservation Service "National Engineering Handbook, Part
12 630: Hydrology", incorporated by reference in Section 9 of this administrative regulation [~~Where~~
13 ~~the watershed area is greater than three (3) square miles but less than 100 square miles, base~~
14 ~~flood flow shall be based on the U.S. Soil Conservation Service's "National Engineering~~
15 ~~Handbook, Section 4: Hydrology," incorporated by reference in 401 KAR 4:200~~]; or

16 3. The [~~Where drainage areas are less than ten (10) square miles, the~~] cabinet may
17 approve the use of other generally accepted methods in keeping with best engineering practices.

18 (5) For areas below dams or impounding structures, flood routings shall be
19 determined as if the dam or impounding structure does not exist.

20 (6) [~~(5)~~] In performing the calculations for regulatory floodway boundaries, the
21 cabinet shall [~~will~~] use standard engineering practices.

22 (a) The applicant shall provide cross sections for determining floodway boundaries at
23 any proposed construction site where FEMA maps are not available. All cross sections shall be

1 referenced to mean sea level, in either the NGVD 1929 or NAVD 1988 vertical datum, and shall
2 have vertical error tolerances of no more than + or - five-tenths (0.5) foot. Cross sections
3 elevations shall be taken at those points which represent significant breaks in slope and at points
4 where hydraulic characteristics of the base floodplain change. Each cross section shall extend
5 across the entire base floodplain and shall be in the number and at the locations specified by the
6 cabinet. Submitted cross sections shall be in a tabular, electronic format. If necessary to ensure
7 that significant flood damage will not occur, the cabinet may require additional cross sections or
8 specific site elevations which extend beyond those needed for making routine regulatory
9 floodway boundary calculations.

10 (b) Roughness values for use in regulatory floodway computations shall be calibrated
11 from existing flood information, where possible. If the information is not available, the cabinet
12 shall base these values on the professional judgment of the cabinet's staff in keeping with best
13 engineering practices. The cabinet may require the applicant to provide photographs or other
14 information if it is [~~which may be~~] helpful in making this determination.

15 (c) Slope values used for regulatory floodway boundary calculations shall be based
16 on flood profiles where available.

17 (d) Conveyance loss shall be calculated through an equal loss method.

18 Section 6. Placement of Flood-damageable Property in Floodplain. (1) To minimize
19 or prevent the harmful effects of stream flooding, the cabinet shall not issue permits for the
20 placement or construction of flood-damageable property in the base floodplains of streams,
21 unless the placement or construction conforms to the requirements of the following subsection.

22 (2) In issuing construction permits pursuant to KRS 151.250 for the placement of
23 flood-damageable property within the base flood inundation area the cabinet shall require the

1 following:

2 (a) All new construction and substantial improvements of residential structures
3 within the base floodplain shall have the lowest floor (including basement) elevated to at least
4 the base flood elevation [~~level or to higher level if the local government has a more stringent~~
5 ~~requirement, unless granted an exception by the cabinet for the allowance of basements or storm~~
6 ~~cellars which shall be properly flood proofed~~];

7 (b) All new construction and substantial improvements of existing construction and
8 nonresidential structures within the base floodplain shall meet the following conditions:

9 1. The lowest floor (including basement) shall be elevated to the base flood
10 elevation [~~level~~] or above; or

11 2. Together with attendant utility and sanitary facilities, shall be designed with the
12 application of dry flood proofing techniques, so that below the base flood level the structure is
13 properly flood proofed with walls substantially impermeable to the passage of water and with
14 structural components having the capability of resisting hydrostatic and hydrodynamic loads and
15 effects of buoyancy;

16 (c) New construction or substantial improvements of existing construction or
17 elevated structures that include fully enclosed areas formed by foundation and other exterior
18 walls below the base flood elevation shall be designed with the application of wet flood proofing
19 techniques, to preclude finished living space and designed to allow for entry and exit of
20 floodwaters to automatically equalize hydrostatic flood forces on exterior walls.

21 1. Opening sizes for complying with this requirement shall meet the following
22 minimum criteria:

23 a. Provide a minimum of two (2) openings having a total net area of not less than

1 one (1) square inch for every square foot of enclosed area subject to flooding;

2 b. The bottom of all openings shall be no higher than one (1) foot above foundation
3 interior grade, which shall be equal in elevation to or higher than the exterior foundation grade;
4 and

5 c. Openings may be equipped with screens, louvers, valves, or other coverings or
6 devices provided they permit the automatic flow of floodwaters in both directions.

7 2. The interior portion of such enclosed areas shall not be partitioned or finished into
8 separate rooms.

9 (d) ~~(e)~~ The floor elevation or the flood proofing certification shall be provided by
10 the permittee after the lowest floor is completed. Upon placement of the lowest floor, or flood
11 proofing by whatever construction means, the permit holder or owners shall submit to the
12 Division of Water a certification of the elevation of the lowest floor or flood proofed elevation,
13 using the FEMA Elevation or Floodproofing Certificate, whichever is applicable, as built, in
14 relation to mean sea level. The document ~~[certification]~~ shall be prepared and certified by or
15 under the direct supervision of a licensed ~~[registered]~~ land surveyor or ~~[professional]~~ engineer
16 ~~[and certified by same]~~. If flood proofing is used for a particular building, the certification shall
17 be prepared by or under the direct supervision of a licensed ~~[professional]~~ engineer ~~[and certified~~
18 ~~by same]~~. Any work undertaken prior to submission of the certification shall be at the permit
19 holder's or owner's risk. The Division of Water shall review the floor elevation survey data
20 submitted. Deficiencies detected by the cabinet's review shall be corrected by the permit holder
21 or owner immediately and prior to further progressive work being performed. Failure to submit
22 the survey or failure to make said corrections required hereby, shall be cause to issue a stop-work
23 order for the project; and

1 (e) ~~(d)~~ All manufactured homes, except in an existing manufactured home park or
2 subdivision, shall be elevated to the base flood elevation and properly anchored to resist
3 flotation, collapse, or lateral movement. If placed in an existing manufactured home park or
4 subdivision the home shall be elevated no less than three (3) feet above grade, and properly
5 anchored. Any manufactured home placed in an existing manufactured home park or subdivision
6 on which a manufactured home ~~[that]~~ has incurred substantial damage equal to or exceeding fifty
7 (50) percent of its predamaged market value as a result of a flood shall be elevated to the base
8 flood elevation and properly anchored. The expansion of an existing manufactured home park or
9 subdivision constitutes new construction and placement in that newly developed area shall
10 conform to both base flood elevation and anchoring requirements.

11 Section 7. Construction Materials. All ~~[To avoid secondary adverse impacts from~~
12 ~~stream construction projects, all]~~ materials used in projects shall be stable and inert, shall be free
13 from pollutants and floatable objects, and shall meet all appropriate engineering standards
14 applicable to the construction project.

15 Section 8. Variances and Exceptions. (1) Encroachments which cause a backwater
16 effect of more than one (1) foot may be allowed by the cabinet if:

17 (a) The ~~[the]~~ applicant owns the entire affected property on both sides of the stream;
18 [;]

19 (b) The ~~[the]~~ amount of backwater at the nearest upstream property line is no more
20 than considerations in Section 5 of this administrative regulation would allow; [;] and

21 (c) The ~~[the]~~ cabinet has reasonable assurances that none of the applicant's property
22 within the area of the excessive backwater shall ~~[will]~~ be subdivided and sold. Reasonable
23 assurances shall include:

1 1. Zoning [~~zoning~~] considerations that would preclude subdivision of the property;
2 [~~or~~]

3 2. Deed [~~deed~~] restrictions that would preclude subdivision of the property; [~~or~~]

4 3. Restrictive floodplain construction easements identifying the Commonwealth of
5 Kentucky as owner of the easement; or [~~that create such a binding condition.~~]

6 4. All structures built in these areas shall have their lowest floor elevation at or
7 above the altered elevation or be flood proofed to that elevation.

8 (2) The cabinet may allow regulatory floodway boundaries to be shifted by changing
9 allocation of conveyance losses. [~~In doing this,~~] The [~~the~~] cabinet may redesignate the regulatory
10 floodway boundary on one (1) side of a stream to be closer to the stream channel if a permanent
11 flooding easement is provided for a compensating area on the opposite side. This easement shall
12 include that area extending from the top of the opposite stream bank to whatever distance away
13 from the stream that is required to compensate for the proposed streamward shift of the floodway
14 boundary. The easement shall specify the Commonwealth as owner of the easement rights and
15 shall prohibit the placement of any obstruction on the property. The easement shall be filed of
16 record in the county where the property [~~county~~] is located and the grantor shall provide proof to
17 the cabinet that the easement has been recorded. In addition, the cabinet may impose any other
18 conditions [~~it determines to be~~] necessary to offset potential adverse flooding impacts based on
19 the best professional judgment of the cabinet's engineers. If regulatory floodway boundary
20 changes are approved by the cabinet, the applicant shall be responsible for having changes made
21 to the appropriate FEMA boundary maps.

22 (3) If an area [~~Areas~~] along a stream is [~~streams may be~~] incorrectly indicated [~~as~~
23 ~~being~~] within the designated floodway on the FEMA map [~~maps. If an error is suspected~~], an

1 applicant may submit an independent hydraulic analysis performed by a qualified licensed
2 engineer that demonstrates the area is not within the designated floodway ~~[request the cabinet to~~
3 ~~perform an independent analysis of the situation]~~. The applicant shall be responsible for
4 obtaining all site-specific information for the analysis including, if necessary, the information
5 used for the initial FEMA study. The cabinet shall review ~~[will perform]~~ the analysis and, if the
6 mapped information is ~~[indeed]~~ incorrect, it may issue a permit based on the revised information
7 ~~[will assist the local community, as resources allow, in getting the maps revised]~~. The cabinet's
8 permit shall ~~[will]~~ reflect the boundaries determined by the corrected analysis. The applicant
9 shall be responsible for submitting the revised information to FEMA. After review, FEMA may
10 develop Letters of Map Change (LOMC) to amend or revise the affected FIRM, FBFM, or FIS.
11 LOMCs include the following categories:

12 (a) A Conditional Letter of Map Amendment (CLOMA), which is FEMA's comment
13 on whether a proposed project would be excluded from the Special Flood Hazard Area (SFHA)
14 shown on the effective National Flood Insurance Program (NFIP) map.

15 (b) A Conditional Letter of Map Revision (CLOMR), which is FEMA's comment on
16 a proposed project that would affect the hydrologic or hydraulic characteristics of a flooding
17 source and thus result in the modification of the existing regulatory floodway or effective Base
18 Flood Elevations.

19 (c) A Conditional Letter of Map Revision based on Fill (CLOMR-F), which is
20 FEMA's comment on whether a proposed project involving the placement of fill would exclude
21 an area from the SFHA shown on the NFIP map.

22 (d) A Letter of Map Amendment (LOMA), which is an official amendment, by letter,
23 to an effective NFIP map. A LOMA establishes a property's location in relation to the SFHA.

1 (e) A Letter of Map Revision (LOMR), which is an official revision, by letter, to an
2 effective NFIP map.

3 (f) A Letter of Map Revision based on Fill (LOMR-F), which is an official revision,
4 by letter, to an effective NFIP map.

5 (4) Exceptions to Section 6 of this administrative regulation may be allowed for the
6 reconstruction, rehabilitation, or restoration of historic structures if ~~[upon the cabinet's~~
7 ~~determination that]~~ the proposed repair, rehabilitation, or restoration will not preclude the
8 structure's continued designation as a historic structure and ~~[that]~~ the exception is the minimum
9 necessary to preserve historic character and design of the structure.

10 (5) Exceptions may be allowed for the requirement of a hydraulic or hydrologic study
11 for the replacement or reconstruction of county or city bridges, if ~~[it is demonstrated to the~~
12 ~~satisfaction of the cabinet that]~~:

13 (a) The new bridge, as designed, will be capable of passing as much or more flow at
14 the base flood level ~~[existing bridge causes no significant obstruction or flood damage]; and~~

15 (b) ~~[The new bridge, as designed, will be capable of passing as much or more flow at~~
16 ~~the base flood level; and~~

17 ~~(e)]~~ There are no significant changes in the elevation and grades of the existing
18 approaches and roadway which may be within the base floodplain.

19 (6) Exceptions may be allowed for the requirement of a hydraulic study for a new
20 clear span bridge, if the deck abutments are recessed within the stream banks with no approach
21 fill and if the chord depths, including curbs, are no greater than eighteen (18) inches.

22 (7) Exceptions may be allowed for the requirement of a hydraulic study for low water
23 crossings, if the structure is constructed in accordance with the cabinet's standard low water

1 crossing template, found in document DOW 84-01, incorporated by reference in Section 9 of this
2 administrative regulation.

3 Section 9. Incorporation by Reference. (1) The following material is incorporated by
4 reference:

5 (a) “Estimating the Magnitude of Peak Flows for Streams in Kentucky for Selected
6 Recurrence Intervals, U.S. Geological Survey, Water Resources Investigations Report 03-4180,
7 2003”;

8 (b) “National Engineering Handbook, Part 630: Hydrology, Natural Resources
9 Conservation Service, July 2001”;

10 (c) “Kentucky Model Flood Damage Prevention Ordinance, 2004”;

11 (d) “Executive Order 77-927, National Flood Insurance Program, Signed by
12 Governor Julian Carroll, September 30, 1977”;

13 (e) “Kentucky Division of Water Policy Document DOW 84-01, 5/18/1984”; and

14 (f) “Application for Permit to Construct Across or Along a Stream and/or Water
15 Quality Certification, DOW 7116, January 2004.”

16 (2) This material may be inspected, copied, or obtained, subject to applicable
17 copyright law, at the Kentucky Division of Water, 14 Reilly Road, Frankfort, Kentucky, Monday
18 through Friday, 8 a.m. to 4:30 p.m.

401 KAR 4:060. "Stream construction criteria." approved for promulgation:

8/14/06

Date

John W. Clay

LaJuana S. Wilcher, Secretary
Environmental and Public Protection Cabinet

PUBLIC HEARING AND PUBLIC COMMENT PERIOD: A public hearing on this administrative regulation shall be held on October 23, 2006 at 10:00 A.M. (Eastern Time) at the Division of Water, Room 5A, 14 Reilly Road, Frankfort, Kentucky. Individuals interested in being heard at this hearing shall notify this agency in writing by October 14, 2006, five (5) workdays prior to the hearing, of their intent to attend. If no notification of intent to attend the hearing is received by that date, the hearing may be canceled. This hearing is open to the public. Any person who wishes to be heard will be given an opportunity to comment on the proposed administrative regulation. If you request a transcript, you may be required to pay for it. If you do not wish to be heard at the public hearing, you may submit written comments on the proposed administrative regulation. Written comments shall be accepted until October 31, 2006. Send written notification of intent to be heard at the public hearing or written comments on the proposed administrative regulation to the contact person.

CONTACT PERSON: David W. Morgan, Director
Division of Water
Department for Environmental Protection
14 Reilly Road
Frankfort, Kentucky 40601
Telephone: (502) 564-3410 Fax: (502) 564-0111

REGULATORY IMPACT ANALYSIS AND TIERING STATEMENT

Administrative Regulation #: 401 KAR 401 KAR 4:060

Contact Person: David W. Morgan, Director

(1) Provide a brief summary of:

(a) What this administrative regulation does: This administrative regulation establishes conditions for the issuance of Floodplain Construction Permits.

(b) The necessity of this administrative regulation: This regulation is necessary to establish the requirements for permits to construct in or along a stream and to ensure a proper basis for the FEMA National Flood Insurance Program.

(c) How this administrative regulation conforms to the content of the authorizing statutes: This administrative regulation conforms to the authorizing statutes by establishing conditions applicable to permits for construction in or along a stream in the Commonwealth. This administrative regulation helps to ensure that the proper engineering and technological procedures are followed when constructing in the floodplain.

(d) How this administrative regulation currently assists or will assist in the effective administration of the statutes: This administrative regulation establishes conditions applicable to permits for construction in or along a stream in the Commonwealth. Permitting and regulating floodplain construction ensures that citizens of the Commonwealth are protected from flooding due to construction in the floodplain.

(2) If this is an amendment to an existing administrative regulation, provide a brief summary of:

(a) How the amendment will change this existing administrative regulation: This amendment will correct certain inconsistencies between the state and federal floodplain regulations and incorporate new technology into the permit review process. The amendment will also provide new and more concise definitions of terms related to floodplain construction.

(b) The necessity of the amendment to this administrative regulation: This amendment is necessary to correct certain inconsistencies between the state and federal floodplain regulations and to better define the floodplain construction permitting process. The Floodplain Construction Permit provides assurance to the applicant that the proposed construction will not increase the possibility of flooding impact for adjacent property owners.

(c) How the amendment conforms to the content of the authorizing statutes: The amendment will correct certain inconsistencies between the state and federal floodplain regulations and ensure that the all measures applicable to protecting the safety of the people of the Commonwealth are followed.

(d) How the amendment will assist in the effective administration of the statutes: This amendment will correct certain inconsistencies between the state and federal floodplain regulations and improve the efficiency and effectiveness of the program. It will also ensure consistency in decisions regarding floodplain construction permitting.

(3) List the type and number of individuals, businesses, organizations, or state and local governments affected by this administrative regulation: This administrative regulation applies to all persons who propose to construct within the floodplain of any stream in the Commonwealth.. The Division has issued more than 15,000 Floodplain Construction Permits and currently receives between 1200 and 1300 applications for Floodplain Construction Permits each year. Affected persons may include private individuals, industrial or manufacturing facilities, public utilities, local government agencies, state government agencies, federal government agencies, water treatment

plants, power generating facilities, coal processing plants, quarries, golf courses, fish and wildlife management areas and other agricultural and commercial operations.

(4) Provide an analysis of how the entities identified in question (3) will be impacted by either the implementation of this administrative regulation, if new, or by the change, if it is an amendment, including: This amendment will correct certain inconsistencies between the state and federal floodplain regulations and better define the floodplain construction permitting process. This amendment will improve the efficiency and effectiveness of the program and provide consistency in the issuance of Floodplain Construction Permits.

(a) List the actions that each of the regulated entities identified in question (3) will have to take to comply with this administrative regulation or amendment: No increased actions will be needed from the regulated entities identified in question (3).

(b) In complying with this administrative regulation or amendment, how much will it cost each of the entities identified in question (3): There will be no increased cost to comply with this amendment.

(c) As a result of compliance, what benefits will accrue to the entities identified in question (3): This amendment will correct certain inconsistencies between the state and federal floodplain regulations and better define the floodplain construction permitting process. The Floodplain Construction Permit provides assurance to the applicant that the proposed construction will not increase the possibility of flooding impact for adjacent property owners.

(5) Provide an estimate of how much it will cost the administrative body to implement this administrative regulation:

(a) Initially: There will be no additional cost to implement this revision.

(b) On a continuing basis: Same as (a)

(6) What is the source of the funding to be used for the implementation and enforcement of this administrative regulation: The funds to support the implementation and enforcement of this administrative regulation are from the state general fund.

(7) Provide an assessment of whether an increase in fees or funding will be necessary to implement this administrative regulation, if new, or by the change if it is an amendment: An increase in funding will not be necessary to implement this amendment to the administrative regulation. There are no fees for Floodplain Construction Permits established by this administrative regulation.

(8) State whether or not this administrative regulation established any fees or directly or indirectly increased any fees: There are no fees for Floodplain Construction Permits established by this administrative regulation.

(9) TIERING: Is tiering applied? (Explain why or why not) Tiering is applied. This administrative regulation does not apply to persons proposing to construct outside the 100 year floodplain.

FEDERAL MANDATE ANALYSIS COMPARISON

Administrative Regulation#: 401 KAR 4:060

Contact Person: David W. Morgan, Director

1. Federal statute or regulation constituting the federal mandate. There is no federal mandate that requires the regulation of Floodplain Construction.
2. State compliance standards. KRS Chapter 151
3. Minimum or uniform standards contained in the federal mandate. There is no federal mandate.
4. Will this administrative regulation impose stricter requirements, or additional or different responsibilities or requirements than those required by the federal mandate? No. There is no federal mandate.
5. Justification for the imposition of the stricter standard, or additional or different responsibilities or requirements. This administrative regulation is mandated by Kentucky Statute, KRS Chapter 151.

FISCAL NOTE ON STATE OR LOCAL GOVERNMENT

Regulation No. 401 KAR 4:060

Contact Person: David W. Morgan, Director

1. Does this administrative regulation relate to any program, service, or requirements of a state or local government (including cities, counties, fire departments, or school districts)?

Yes X No

If yes, complete questions 2-4.

2. What units, parts or divisions of state or local government (including cities, counties, fire departments, or school districts) will be impacted by this administrative regulation? This administrative regulation will affect city and county Floodplain Coordinators and the issuance of Floodplain Construction Permits by local governments.

3. Identify each state or federal statute or federal regulation that requires or authorizes the action taken by the administrative regulation. Requirement is identified in 151.100, 151.110, 151.182, 151.184, 151.186, 151.210, 151.250, 151.260, 151.280, 151.310, 44 C.F.R. Part 60, & 44 C.F.R. 64.3, and is authorized by 151.125 & 151.230.

4. Estimate the effect of this administrative regulation on the expenditures and revenues of a state or local government agency (including cities, counties, fire departments, or school districts) for the first full year the administrative regulation is to be in effect.

(a) How much revenue will this administrative regulation generate for the state or local government (including cities, counties, fire departments, or school districts) for the first year? There is no anticipated effect on current revenues.

(b) How much revenue will this administrative regulation generate for the state or local government (including cities, counties, fire departments, or school districts) for subsequent years? There is no anticipated increase for subsequent years.

(c) How much will it cost to administer this program for the first year? There is no anticipated effect on current expenditures.

(d) How much will it cost to administer this program for subsequent years? There is no anticipated increase for subsequent years.

Note: If specific dollar estimates cannot be determined, provide a brief narrative to explain the fiscal impact of the administrative regulation.

Revenues (+/-): This regulation does not increase local or state revenues.

Expenditures (+/-): This regulation does not increase local or state expenditures.

Other Explanation: The time required for compliance with the administrative regulation will not increase due to this amendment.

**SUMMARY OF DOCUMENTS
INCORPORATED BY REFERENCE
IN 401 KAR 4:060**

The following documents are incorporated by reference in 401 KAR 4:060

- (1) “Estimating the Magnitude of Peak Flows for Streams in Kentucky for Selected Recurrence Intervals, U.S. Geological Survey, Water-Resources Investigations Report 03-4180; 2003”
 - (a) This document is used to determine the correct method for estimating the magnitude of stream flows.
 - (b) 401 KAR 4:060, Section 9(1)(a) incorporates this document.
 - (c) 73 pages.
- (2) “National Engineering Handbook, Part 630: Hydrology, Natural Resources Conservation Service, July 2001”
 - (a) National Engineering Handbook Part 630 is formerly known as NEH-4 details how watershed hydrology is to be approached by the federal government.
 - (b) 401 KAR 4:060, Section 9(1)(b) incorporates this document.
 - (c) 832 pages.
- (3) “Kentucky Model Flood Damage Prevention Ordinance; 2004”
 - (a) Model which communities in the National Flood Insurance Program are to follow when adopting a floodplain ordinance.
 - (b) 401 KAR 4:060, Section 9(1)(c) incorporates this document.
 - (c) 32 pages.
- (4) “Executive Order 77-927, National Flood Insurance Program; Signed by Governor Julian Carroll, September 30, 1977”
 - (a) This document is an Executive Order from Governor Julian Carroll mandating state agencies to consider and comply with floodplain ordinances as per National Flood Insurance Program requirements in state construction projects.
 - (b) 401 KAR 4:060, Section 9(1)(d) incorporates this document.
 - (c) This document is 3 pages.
- (5) “The Kentucky Division of Water policy document DOW 84-01, May 18, 1984”
 - (a) This document is a policy memo that describes how KRS 151.250 will be implemented with regard to construction permits for cities and counties replacing infrastructure damaged by disasters.
 - (b) 401 KAR 4:060, Section 9(1)(e) incorporates this document.
 - (c) This document is 3 pages.
- (6) “Application for Permit to Construct Across or Along a Stream and/or Water Quality Certification, DOW 7116, January 2004”
 - (a) 401 KAR 4:060, Section 9(1)(f) incorporates this document.
 - (c) This document is 2 pages.

The total number of pages incorporated by reference is 945 pages.